

VASHON-MAURY ISLAND GROUNDWATER MANAGEMENT AREA SAMPLING AND ANALYSIS PLAN

ADDENDUM

This document is an addendum to the original Sampling and Analysis Plan (SAP) written for the Vashon-Maury Island Groundwater Management Area groundwater quality sampling. This addendum updates Sections 1.4 - 1.6 and 2.2 of the original SAP. All other sections still apply.

BACKGROUND

Past monitoring efforts on Vashon-Maury Island under the original SAP have provided crucial information in describing the baseline characteristics of the island's groundwater. Water quality monitoring between 1989-1993 and 2000-2003 characterized both the natural and anthropogenically-induced constituents in the island's groundwater. During these sampling sessions, the quality was monitored at over 20 wells at least twice a year for a range of chemical constituents (see GWMA SAP for details).

Since there has been a large interest in continuing the groundwater quality sampling efforts on VMI, a Water Resources Evaluation (WRE) that includes groundwater quality sampling has been proposed and initiated on the island. This Sampling and Analysis Plan (SAP) addendum outlines the changes to the current SAP that will begin starting in 2004. The primary goals for this sampling are to continue to track long-term trends in water quality and provide an early warning mechanism for potential water quality problems on VMI.

SAMPLING LOCATIONS

Sampling will be conducted at the wells previously sampled as part of King County's Ambient Monitoring Program and the Vashon-Maury Island Groundwater Management Plan (GWMP) sampling. As you can see from Figure 1 in the original SAP, the locations provide good geographic coverage of the study area. During the original well selection process, a strong emphasis was placed on selecting wells completed in the shallowest hydrostratigraphic zone (Zone 1) since this zone is the most susceptible to contamination and serves as an "early warning" to deeper zones. Other well selection factors considered were the major geologic unit in the area and the well's surrounding land use. It should be noted that no attempts have been made to sample known small scale or point source impacts.

Not all of the wells sampled will be tested for pesticides since the cost is so high. Approximately 10 out of the 20 wells will be selected for this additional testing. The depth of the well and the surrounding land use will be the determining factors in deciding which 10 wells will be selected.

SAMPLING FREQUENCY

Groundwater quality sampling will be conducted annually. Every effort will be made to sample in the same month for all subsequent years, however the sampling schedule will be sensitive to the seasonal variations in the use of potential pollutants (for example, heavy nitrate and pesticide application periods).

TARGET ANALYTES

The analytes that will be sampled over the course of this study have been grouped into three separate classes: environmental indicator, baseline, and select pesticides. Table 1 shows the analyte classes that will be sampled, by year, for the entire 7-year length of the Water Resources Evaluation.

Table 1. Summary of yearly analyte selection for water quality monitoring on VMI

Year	Environmental Indicators	Baseline	Select Pesticides
2004	√	√	
2005	√		√
2006	√		
2007	√	√	
2008	√		√
2009	√		
2010	√	√	

The environmental indicators include nitrate + nitrite, chloride and arsenic as well as the field parameters (pH, conductivity, dissolved oxygen, turbidity, and temperature). A list of the analytes included within the Baseline list can be found in Table 2 of the SAP. Table 3 of the SAP lists the major pesticides that the water samples could potentially be tested for. The exact list of pesticides will be discussed further with the GW committee, USGS and the King County Environmental Lab.

PROJECT ORGANIZATION AND RESPONSIBILITIES

Activities outlined in this SAP will be conducted by personnel from King County Department of Natural Resources and Parks (KCDNRP). Eric Ferguson has assumed the role of Project Manager for King County. Contact information is provided below:

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EXPECTED FUTURE CHANGES

It is anticipated that dedicated monitoring wells will be installed on the island starting in 2005 and continuing through 2007. These wells will be equipped with water level loggers upon installation and will eventually become the locations for future water quality sampling. The frequency of water quality monitoring and the target analytes will not change with the addition of the dedicated monitoring wells, only the well locations will change. A new sampling and analysis plan (SAP) will be written to document the new procedures necessary in sampling these wells.